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PATENT ABSTRACTS OF JAPAN

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(71) Applicant: **ZUIKOU:KK**

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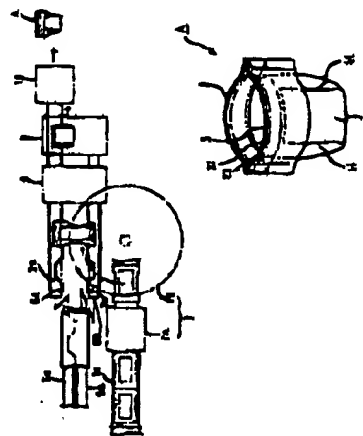
(72) Inventor: **WADA TAKAO**(54) **MANUFACTURE OF BRIEFS TYPE DISPOSABLE**
DIAPER

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(57) Abstract:

PURPOSE: To reduce costs by enabling an automatic large-scale production method by forming a back body wrapping part and front body wrapping sections to place a diaper main body thereon orthogonally and to bond it thereto.

CONSTITUTION: Optional stock is selected for a back body wrapping section and front body wrapping sections (2 and 3) independently of diaper body 1. In other words, the diaper body 1 is relayed to a turning transfer device 7B behind a suction conveying device 7A and the diaper body 1 is turned by 90 to be supplied to a specified position between belt bodies 2a and 3a of both body wrapping sections perpendicular thereto. Then the diaper body is conveyed to a bonding means 8 to bond it integrally with the belt bodies 2a and 3a of both body wrapping sections. Thereafter, the assembly is conveyed to a folding means 9 to be folded double and side ends of the belt bodies 2a and 2b of both the body wrapping sections are cut while being bonded by a bonding/cutting means 10.



full translation attached
No equivs. outside JPO

Translation of
Japanese laid open patent application number H3-176053

Japanese Patent Office (J P)
LAID OPEN PATENTS GAZETTE (A)

Laid open patent application number H3-176053
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(total of 6 pages [in the Japanese])	

Title of the invention Brief-type disposable diaper production
method

Patent application number H1-315742
Application date December 4, 1989

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Specification

1. Title of the invention

Brief-type disposable diaper production method

2. Scope of the patent claim

A brief-type disposable diaper production method involving

a process whereby a water-absorbent material is inserted between an outer sheet and an inner sheet to form a diaper body;
a process whereby a front waistband and a continuous back waistband having an elastic member at least at the side is formed;

a process whereby the diaper body is overlapped and adhered to both waistbands in the transverse direction;

a process whereby the diaper body is folded double and both waistbands are brought into contact; and

a process whereby the contacted waistbands are cut to prescribed dimensions and the regions near the cuts are adhered to integrate the waist parts at the edge portions

to produce a brief-type disposable diaper from a diaper body and a single waistband.

3. Detailed description of the invention

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Field of industrial use

The present invention relates to a brief-type disposable diaper production method.

Prior art

Known technology relating to this type of brief-type disposable diaper production method is disclosed in Japanese Unexamined Patent Application Number S57-77304: "Diaper-brief and Production Method Therefor".

Problems to be overcome by the invention

The abovementioned technology is disadvantageous in that as there is a cut-out portion in order to form an opening for the wearer to insert his/her legs, it is necessary to add a process for forming the cut-out portion, which raises production costs.

Means of overcoming the abovementioned problem

The present invention overcomes the abovementioned problem of the prior art and allows the production of brief-type disposable diapers by an automated large-scale production method involving a process whereby a diaper body is formed; a process whereby a back waist part and front waist part are formed; a process whereby the diaper body is overlapped and adhered to both waist parts in the transverse direction; and a process whereby the diaper body is adhered and integrated.

Embodiment

The present invention is described in detail based on the embodiment shown in the following drawings.

Figures 4 through 6 show an example of a brief-type disposable diaper produced according to the present invention: 1

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represents the diaper body, formed by inserting absorbent material 13 between outer sheet (for example, a water-impermeable P.E. sheet) 11 and inner sheet (for example, water permeable nonwoven cloth) 12.

2 is the back waist part and 3 is the front waist part, and the material for both waist parts 2 and 3 may be selected independently from the material for diaper body 1, although in this embodiment, the same material is used; the double layer having P.E. sheets 21 and 31 as the outside and nonwoven cloth 22 and 32 as the inside is formed, an elastic member sheet (for example, a polyurethane sheet) 23 and 33 is inserted into part thereof, so that at least the upper edge is expandable. It should be noted that it is also possible to have a single layer elastic sheet, to form a completely expandable construction. It should be noted that as waist parts 2 and 3 are preferably of an air-permeable material, it is desirable either to take the nonwoven cloth and elastic sheet, and exclude the P.E. sheet, or, when a P.E. sheet is used, to puncture a plurality of small holes therein. It is also possible to totally or partially affix the elastic member (rubber thread, rubber tape or the like) to a sheet of suitable material, to form an elastic sheet.

Moreover, the hole parts H for the insertion of the wearer's legs are dictated by the width and shape of the diaper body 1 and the width and shape of waist parts 2 and 3, and generally, the shape is such that the holes are toward the front side.

The brief-type disposable diaper production method of the

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present invention will be described below with reference to Figures 1 through 3.

Figure a shows the diaper body 1 production process: absorbent body 13 is placed on outer sheet (back sheet) 11 supplied from outer sheet roller 11a, then inner sheet (top sheet) 12, supplied from inner sheet roller 12a, is supplied thereon, to achieve a sandwich-like insertion of absorbent body 1 between outer sheet 11 and inner sheet 12; then this is transported by the first conveyor device 4 to adhering-cutting device 15, and the circumference is firmly adhered by adhering-cutting device 15, or adhered with adhesive, then cut to the required shape. It should be noted that this process is the same as known diaper production processes, and it is possible to employ a conventional production line for disposable diapers.

It should be noted that the adhering-cutting device 15 comprises two stages: first unit 15a and second unit 15b. In first unit 15a, only adhesion and the cutting of cut-away parts P proceeds, to continuously form diaper body 1, then diaper body band 1a is transported to the next process, and may be cut crosswise to the required dimensions by second unit 15b when in the vicinity of the waistbands 2,3-adhesion process.

Moreover, as there are no cut-away parts P when diaper body 1 is long, it is also possible to achieve the aims of the present invention by only adhering in first unit 15a, then cutting in second unit 15b.

There are various possible shapes for the cut-away parts P, and the shape can be selected according to the shape of the

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waistband 2,3 and the desired shape of hole parts H.

Figure 1(b) shows a waistband 2, 3 production line: elastic member sheet 23a, supplied by elastic member sheet roller 14, is cut along a continuous S-shaped cutting line in the central portion by cutting device 24 to form a pair of bands, back waistband 2a and front waistband 3a.

It should be noted that in the case of the multilayer constructions shown in Figure 3 (outer sheet (P.E. sheet) and elastic member sheet, inner sheet (nonwoven cloth) and elastic member sheet, or outer sheet and elastic member sheet-inner sheet), if elastic member sheet 23a is a band of the same width, and only part of sheet 21a, 22a is adhered, the elastic member sheet can be used effectively without cut-away parts, and holes of the desired shape can be found by selecting a suitable shape for waist part 2,3.

Figure 1(c) integrates the diaper body 1 process of Figure 1(a) and the waistband 2a, 3a process of Figure 1(b), to show the brief-type disposable diaper-forming process: the second conveying device 5a, 5b for waistbands 2a, 3a extends to become the third conveying device 6A and the force conveying device 6B.

Diaper body supply means 7 comprises suction conveying device 7A and rotation conveying device 7B, such that suction conveying device 7A for conveying the diaper body 1 that has been cut to the required dimensions is provided at the end of the first conveying device 4, after which diaper body 1 proceeds onto rotation conveying device 7B, then rotation conveying device 7B rotates the diaper body 1 through 90°, to supply diaper body 1

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transversely to a prescribed position on waistband 2a, 3a.

It should be noted that rotation conveying device 7B receives the diaper body 1 on the conveying surface of suction conveying device 7A then supplies it by rotating $1/4$ of a rotation while suction continues, then rotating the diaper body 1 that is between third conveying device 6A and fourth conveying 6B through 90° , and diaper body supply means 7 can achieve the aim by means of a suitable conveying means as follows: the adsorption surface of the diaper body is rotated through 90° according to the rotation of a suction rotation drum provided so as to be continuous with suction conveying device 7A, then the diaper body proceeds to a suction conveyor belt, whereupon it is conveyed in a transverse direction with respect to the conveying devices, thereby allowing diaper body 1 to be supplied between waistbands 2 and 3.

Diaper body 1 is then conveyed to adhesion means 8 and adhered to waistbands 2a, 3a by a suitable adhesion means such as an adhesive or heat seal.

It is then conveyed to folding means 9, and folded double by said folding means 9 to superimpose front waistband 2a and back waistband 3a.

The sides of the superimposed waistbands 2a and 2b are adhered and cut to the required shape by adhering-cutting means 10, to yield brief-type disposable diaper A.

Advantages of the invention

The present invention yields a brief-type disposable diaper by adhering and integrating a pair of waistbands and a

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diaper body and cutting to the required dimensions and so conventional diaper production lines can be used for the diaper body, the waist parts are supplied as bands and automated mass production is possible due to a belt conveying device, so the brief-type disposable diapers can be effectively produced at extremely low cost.

4. Brief description of the drawings

Figure 1 is an explanatory diagram for the brief-type disposable diaper production method of the present invention: Figure (a) shows the diaper body production process, and Figure (b) shows the waistband-integrating process.

Figure 2 is a diagram of the diaper body, and Figure 3 shows the front waist part and back waist part.

Figure 4 shows an oblique view of a brief-type disposable diaper produced according to the present invention, Figure 5 is plane view and Figure 6 is a cross-sectional view of the diaper body.

- | | |
|----|--------------------------|
| 1 | Diaper body |
| 2 | Back waist part |
| 3 | Front waist part |
| 7 | Diaper body supply means |
| 8 | Adhesion means |
| 9 | Folding means |
| 10 | Cutting means |

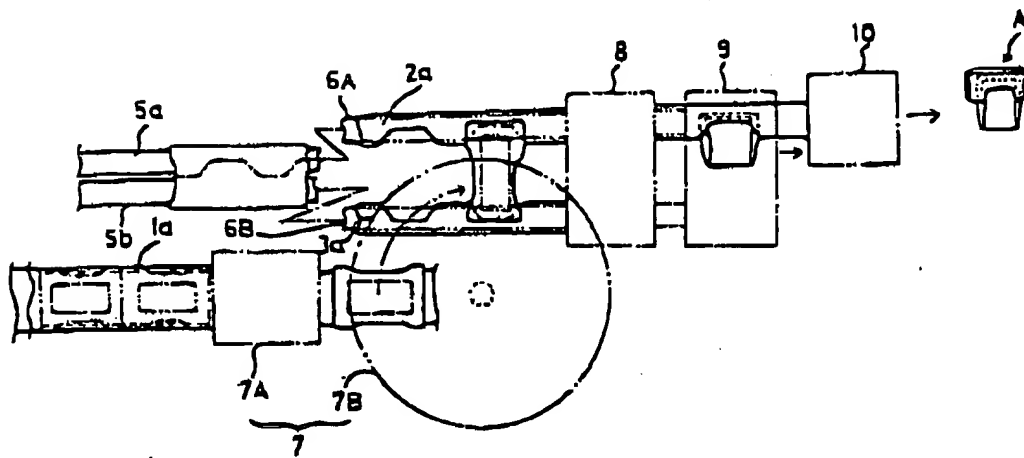
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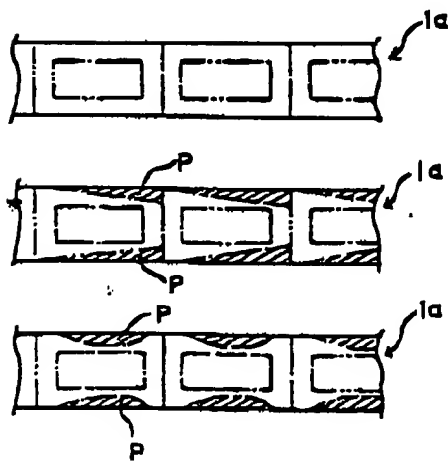
S. Okumura

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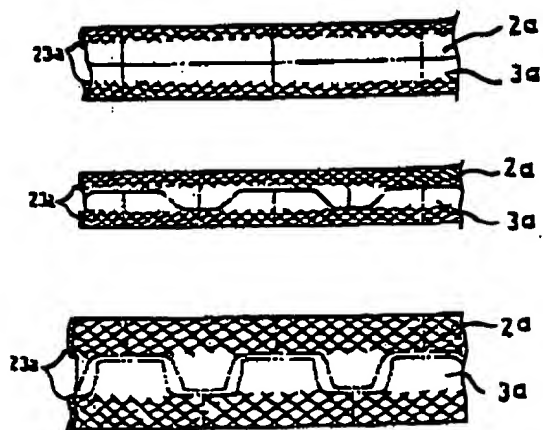
第1圖(C)



第2圖

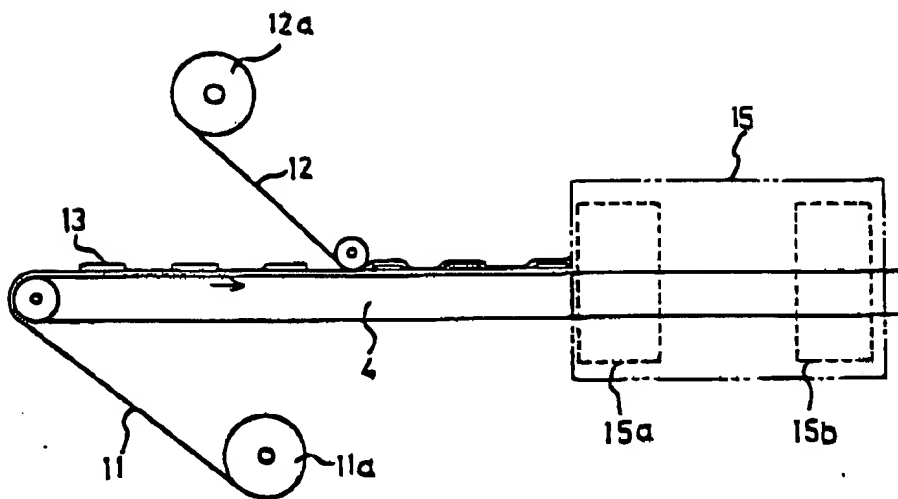


第3圖

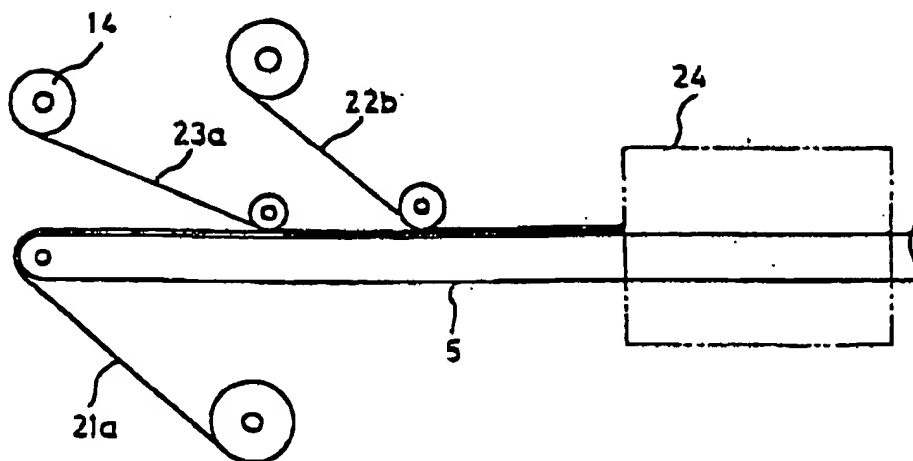


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第1図(a)

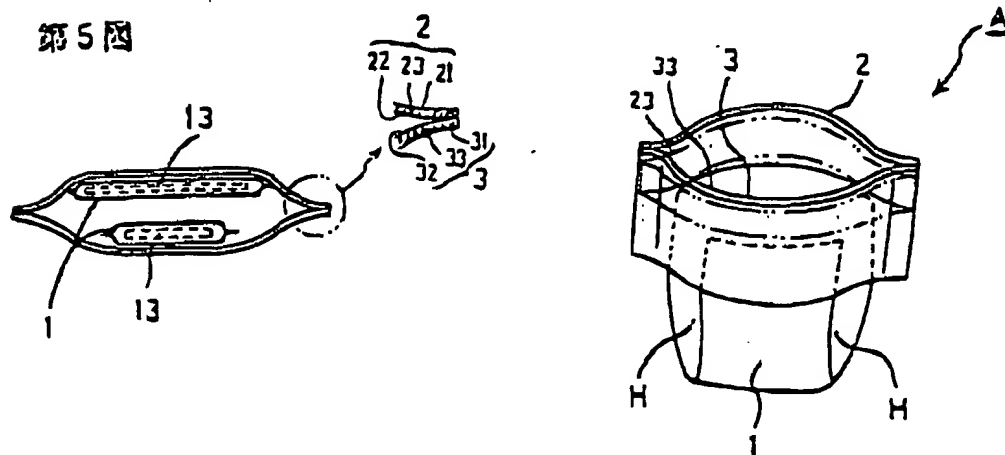


第1図(b)

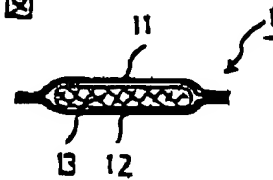


特開 2003-17053 (B)

第4図



第6図



⑩ 日本国特許庁(JP)

⑪ 特許出願公開

⑫ 公開特許公報(A) 平3-176053

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5/44H 7603-4C
6606-3B

A 41 B 13/02

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審査請求 未請求 請求項の数 1 (全6頁)

⑮ 発明の名称 プリーフ形便い捨ておむつの製造方法

⑯ 特 願 平1-315742

⑰ 出 願 平1(1989)12月4日

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⑳ 代 理 人 弁 理 士 奥 村 文 雄

明 細 書

1. 発明の名称

プリーフ形便い捨ておむつの製造方法

2. 特許請求の範囲

外周シートと内周シートとの間に吸収部を設け、
 込んでおむつ本体を形成する工程と、

少なくとも両端部に側面部を有する透気性の
 透気膜を形成部および側面部を形成部を
 形成する工程と、

両側部を形成部と反対方向におむつ本体を設
 置し得る工程と、

おむつ本体を二側面に折り曲げるとともに両側
 面を形成部を形成させる工程と、

利用した両側部を形成部を形成する法に切断し
 且つ両側部の透気部を有して両側部を形成
 部で一併形成する工程と、

を包含し、おむつ本体と、一側の両側部を形成
 部により、プリーフ形便い捨ておむつを製造するこ
 とを特徴とする、プリーフ形便い捨ておむつの製
 造方法。

3. 発明の詳細な説明

① 発明の利便性

本発明は、プリーフ形便い捨ておむつの製造方
 法に関するものである。

② 背景技術

この種のプリーフ形便い捨ておむつの製造方法
 に関し、特許第57-77304号「おむつのプリー
 フおよびその製造方法」の公開特許公報が知られる。

③ 発明が解決すべき課題

上記の背景技術においては、背面にあたり部
 分の足を挿入するための開口部を形成するための内
 周工部分が形成するので、切欠部を形成するた
 めの工程を付加する必要がある、製造コストが相
 対する問題がある。

④ 上記課題を解決するための手段

本発明は、おむつ本体を形成する工程と、両側
 部を形成部および側面部を形成する工程と、
 両側部を形成部に対し反対方向におむつ本体を設
 置する工程と、おむつ本体を両側部で一併形成する工
 程とにより、両側部を形成部によりプリーフ

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ブリーフ状に包んでおきつとする工程を示し、図4は図1の構成要素2a・3aの第2製造工程a・3bを施して第3製造工程6aおよび第4製造工程6bとする。

第1製造工程4の枠組板に、所定寸法に切開されたおむつ本体1を製造するための吸引搬送装置7Aを設け、その下方の給送部2aに給送装置7Bを設け、図1の給送装置7Bで給送装置7Aを90度回転させて第2製造工程2a・3a間の所定位置に位置調整しておむつ本体1を供給して、おむつ本体供給手段7を用成する。

なお、図1の給送装置7Bは吸引搬送装置7Aの給送部上の給送装置7Aを全方向に、吸引しつつ1/4回転して第3製造工程6aと第4製造工程6bとの間におむつ本体1を90度回転させて供給するものであるが、吸引搬送装置7Aに接続して吸引圧力ドラムを設けてドラムの回転に伴って給送装置7Bの回転速度を調整させて90度回転させたおむつ本体1をベルトに引寄せ吸引ベルトとて給送装置と直交方向に移送しても、本発明のおむつ

1を製造する工程は図2・3に示すものであるものであり、おむつ本体供給手段7は直交の給送手段により供給を達成することができる。

次に図1の構成要素へ施した法、ヒートシール、接着剤等の接着の手段等により、本発明のおむつ1を何れの方法で図2a・3aと接着して一体化する。

そのうち、製造手段9へ搬送し、図1の製造手段9によりこのおむつ1を何れの方法で図2aと第2製造工程2aとを接着させる。

重ね合わせた図2aと第2製造工程2aとの間には、図1の製造手段9により供給するとともに、所定位置に切開して、ブリーフ状に包んでおむつAを完成する。

効果の発見

本発明は、一片の製造工程で、おむつ本体と、接着一体化し、所定寸法に切開することにより、ブリーフ状に包んでおむつを完成するのであるから、おむつ本体は従来のおむつラインを利用することができ、また製造工程は

1000—切開手段

図1 製造工程 図 2
図3 製造工程 図 4

体で製造されることで、ベルト搬送装置による本発明の製造方法とすることができ、おむつ本体のコストがブリーフ状に包んでおむつを完成する工程を減らすものである。

4. 製造工程の概要

第1図は本発明によるブリーフ状に包んでおむつの製造方法を示す図である。a図はおむつ本体の製造工程、b図は製造工程の一体化工程をそれぞれ示すものである。

第2図はおむつ本体の製造工程、第3図は製造工程の一体化工程の製造工程である。

第4図は本発明により製造されたブリーフ状に包んでおむつの製造工程、第5図は製造工程の一体化工程である。

- 1—おむつ本体
- 2—製造工程
- 3—製造工程
- 7—おむつ本体供給手段
- 8—製造手段
- 9—製造手段